State of Indiana Underground Coal Mine Emergency Response Plan

PREAMBLE

The purpose of this manual is two-fold. First, and most important, it is a guide to Indiana's mine rescue teams in the event of a mine emergency. That information is contained primarily in Part II of this manual titled Mined Rescue Operations.

The second purpose of the manual is to provide underground coal mine operators with suggestions on how to manage a mine emergency. That information is contained primarily in Part I of this manual titled Mine Emergency Management. All underground coal mine operators are encouraged to develop a mine specific emergency plan. Our goal is to provide a guideline for such a plan in this manual.

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I. Introduction

When an emergency occurs at a mine, the first few hours after the emergency are the most critical and will determine the success of the mine rescue and recovery operations in saving miner's and mine property. How well organized and prepared mine management and the mine rescue teams are, is critical to any mine rescue and recovery operation.

Teamwork is essential not only between the mine rescue teams themselves, but also among those on the surface: company administrators, mine personnel, and Federal and State Officials. All these people comprise an entire rescue network designed to direct and support the entire operation, particularly the rescue teams, during a mine emergency.

A chain-of-command must be in place and an emergency notification plan established to designate which personnel must be contacted during a mine emergency.

By the time the mine rescue team arrives on-site, rescue and recovery operations may already be underway on the surface. Several officials and mine personnel will have been called to the mine to assume their duties as part of the chain-of-command.

This training manual is designed to familiarize the rescue team members and mine management regarding how to organize and manage a rescue and recovery operation, and to understand the role each team plays in relation to the overall organization.

II. Notification of a mine emergency

A. Callout Procedure – When an operator first becomes aware of a mine emergency requiring mine rescue team deployment, the operator will immediately notify the Indiana State Bureau of Mines and MSHA.

The Bureau will then call each individual mine rescue team member and give them reporting instructions. The team member should notify his/her employee that he/she is participating in an emergency. These notifications will occur consistent with the calling tree attached hereto.

III. Notification Plan

Each mine should have an Emergency Notification Plan for notifying necessary personnel when there is an emergency at the mine. This plan lists the various Supervisors, Administrators, and Government Officials who must be notified of the mine emergency. A copy of this plan may be filed with the State Bureau of Mines and updated as necessary. Following is a list of persons who should be notified:

Company Management
General Mine Manager/Superintendent
Deputy Commissioner/State Bureau of Mines
Mine Foreman
Safety Director
District Inspector (State and Federal)
Law Enforcement Agencies
Medical personnel, ambulances, and other emergency vehicles
Hospitals should be alerted as necessary.

This list should be tailored to meet individual mine job titles. The mine's emergency organization is a plan of action, designed to restore order at the mine site and supervise emergency efforts. The mine's notification plan should also include other support personnel who would provide services at the mine site. Such persons who may be needed could include: Security Personnel, Police Officers, Supply Clerks, Clergy, Telephone Operators, and Coroner.

IV. Establishing a Chain-of-Command

Because many persons will be doing many different jobs during rescue and recovery operations, it is important to establish a clear chain-of-command in order that surface arrangements can be handled smoothly and rescue and recovery work is well coordinated.

Located at the top of the list of the chain-of-command is the Person in Charge ("PIC") at each mine (Mine Superintendent, mine manager, general manager, or other designee) who may delegate the responsibility of other jobs to other reliable company employees. Employees assigned these responsibilities must know in advance exactly what their duties and responsibilities are, who they are to report to, and who is to report to them.

V. Making Surface Arrangements

A. **Suggested Facilities and Arrangements** – Surface arrangements cover a wide range of activities and require the coordinated efforts of many persons. Surface arrangements include such tasks as establishing a command center where all of the decisions are made, providing an adequate information center for releasing information to the public, a family waiting area, and a location for obtaining the necessary supplies and equipment.

1. *Command Center* **–** The command center is the most important surface facility and will be the hub or the mine rescue operation.

Those in charge will be stationed at the command center to plan and direct the rescue and recovery operation. The command center will house communications equipment

connected to the underground phones and to other surface phone lines and communication equipment. It will maintain mine maps to follow the progress of the teams and to mark findings and plan rescue strategy.

2. *Waiting Area for Teams* – A waiting area for the incoming rescue teams is required so that the team members have a central location to prepare for rescue operations.

As the mine rescue teams arrive at the mine site, they are to check in and be assigned to a team area. If team members carry mine rescue team identification cards, they should present their cards when checking in at the mine site.

A rotation schedule for deploying all of the rescue teams who are called to the mine site will be prepared and it will designate which team is to be the exploration team, backup team, and standby team. The rotation schedule is to be posted in the waiting area, and lists each team's status during the rescue or recovery operation.

3. *Bench Area for Apparatus* – The bench area, where water and electricity is available, should be set aside as an apparatus room where the mine rescue apparatus can be cleaned, tested, and prepared for the bench-men or by the team members. If convenient, the mine rescue vehicle can be used as a bench area for the apparatus.

4. *Security* – Establishing good security at the mine is essential in order to keep the roads open for mine, or emergency personnel, and to ensure that curious bystanders do not hinder resource efforts or get injured while on mine property. All roads and paths leading to the mine should be secured and guarded.

Incoming traffic, on the roads leading to the mine property, should be regulated by authorized personnel, to keep unnecessary vehicles off the roads, and keep these roads open for essential personnel, needed supplies, and emergency vehicles.

5. *Information Center* – An area with available space should be established on the surface as an information center. The information center will authorize, issue, and control the accuracy of the information being released to the public.

The information center may be staffed by a company official, or could be a Federal or State official who is authorized and qualified to answer questions from miners' families or friends, or from the news media.

6. *Waiting Area for Families and Friends* – A family waiting room should be away from any rescue activity and away from the information center. The information center should periodically inform family members of rescue and recovery operations, and be authorized and qualified to answer questions from miner's families and friends.

7. *Newsroom for the Media* – The newsroom is the only area where the news media should be allowed and is where the media will be given information. News reporters should be restricted to this room for their safety and the efficient operation of mine rescue efforts.

Copies of all news releases should be given to the news media and reports to prevent any confusion or misconstrued information from being released as facts. Additionally, a copy of each news release bearing the date and time of issuance is to be kept on file for future reference and as a record.

8. *Food and Sleeping Quarters* – Often it is necessary to feed and house mine personnel during a mine emergency. Arrangements should be made for a caterer or nearby restaurant to bring in food. Sleeping quarters can be arranged at a nearby motel, or if none are available, sleeping quarters may be set up at the mine.

9. *Laboratory* – It will be necessary to test samples of the mine air during the rescue and recovery operation. A laboratory with suitable air analysis equipment should be set up at the mine to quickly obtain the results of the samples taken from the mine atmosphere. If it is not possible to set up a laboratory on-site, mine rescue vans with mobile laboratories can be called in to do quick air analysis. As a last resort, air samples can be sent off-site to a commercial laboratory. MSHA has a Temp Lab that is usually brought to the area and this lab should be called to the site as part of the organizing efforts.

10. *Medical Facilities* – Some medical services and facilities have to be available. If no one is trapped underground, a simple first aid station for rescue and recovery personnel who may get injured may be sufficient. However, in a disaster where several miners are trapped underground, or where injuries are substantial after an explosion, roof fall, or fire, it may be necessary to staff a temporary hospital. Stand-by Ambulances, Emergency Medical Technicians (E.M.T.) may also be required.

11. *Temporary Morgue* – In situations where bodies are being recovered from the mine, a temporary morgue will be necessary. Local coroner's office should be contacted when necessary.

VI. Other Mine Management Organization – Many people will be required to perform various rescue tasks, and some duties may seem more important than others since some assignments will range from ordering necessary supplies and seeing that they go where they are supposed to, while others will include actual rescue procedures.

Listed below is a suggested plan for devising emergency tasks, suggested personnel for certain tasks may be suggested in the following:

A. Person in Charge - is the ultimate authority in charge of the entire mine emergency operation; responsible for establishing the command center; and

overseeing all aspects of the rescue and recovery operation. Specifications should include

- Delegates responsibility for various aspects of the operation as necessary according to a prearranged plan.
- It is suggested that the Person in Charge establish an advisory committee ("committee") comprised of Company, Federal and State Representatives to serve and advise during each shift at the command center.
- This Committee, along with the Person in Charge could act as a briefing and debriefing committee to inform teams entering the mine and gather information from teams exiting the mine.
- The Person in Charge should designate an individual to serve as the fresh air base coordinator for each shift, plus an advisory committee to serve and advise the coordinator during each shift at the Command Center. The Person in Charge should designate someone to direct the information center and issue news releases. Additionally, the Person in Charge should have Mine Rescue experience and be knowledgeable in how the team works as a unit.
- The Person in Charge should delegate a liaison to work with affected family members.

B. Additional Tasks (checklist) for the Person in Charge to Implement

- ☐ Establish a communications system for all communications coming into and out of the Command Center.
- ☐ Identify electric switches controlling electricity to the mine that must be locked out.
- ☐ Check all ventilation systems, including exhausting fans, explosion doors, etc.
- ☐ Implement security at the mine entrance and any entrance to the underground mine.
- ☐ Record each person's name and time they enter the underground mine for rescue operations.
- ☐ Set up medical facilities and a temporary morgue, where necessary.
- ☐ Provide an area for assembled mine rescue team members.
- ☐ Make available an area for equipment testing, cleaning and recharging mine rescue team breathing apparatus. The area must have water available for cleaning of the equipment.
- ☐ Prepare and maintain a rotation schedule for all mine rescue teams. Adequate time for testing, cleaning, and repairs of any apparatus must be provided prior to deployment of any mine rescue teams into the mine.
- ☐ Ensure that the Command Center has available copies of maps identifying air flow and all ventilation controls. The maps should also show door pumps, substations, machinery, and the electrical system with all control switch locations. The mine engineers, in most cases, should have this responsibility.
- ☐ Notify any adjoining, or adjacent mines, where necessary.
- ☐ Arrange for drilling rig equipment where necessary.

- ☐ Ensure that any equipment necessary for recovery operations is available. It is suggested that an inventory of dispatched equipment be recorded for control purposes.
- ☐ Mines should provide a landing area and emergency lighting for a life flight helicopter or one that potentially brings in needed supplies.

Part II:

Mine Rescue Operations

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VIII. Mine Rescue Personnel Call Tree

I. Objective

Most people associate “mine rescue” with “saving lives.” Although saving lives is the most important part of mine rescue work, there is more work involved. A more complete definition of mine rescue is:

“The practiced response to a mine emergency situation that endangers life, property, and the continued operation of the mine.”

II. Mine Rescue Principles

Mine rescue and recovery work involve a wide variety of tasks. There are three fundamental principles for an effective mine rescue operation.

1. Ensure the safety of the Mine Rescue Team;
2. Make every effort to rescue or secure the safety of affected miners; and
3. Protect mine property from further damage caused by fired, cave in, etc.

III. Mine Rescue Team Emergency Notification

A. Callout Procedure – When the Bureau is notified by a mine operator that the mine rescue teams should be deployed to a mine emergency the Bureau will call and initiate contact with mine rescue team members pursuant to the calling tree attached to this manual. Team members should advise their employers that they have been called out to a mine emergency.

B. Travel to emergency site – Although an emergency may be occurring in a mine, at no time should a team member speed or violate Motor Vehicle Codes while in route to the emergency.

C. Arrival at emergency site – Upon arrival at the scene, team members shall follow the affected companies policy concerning checking in or reporting to a security station.

Once on company property, team members should locate the Mine Rescue Vehicle and check in, or if the truck has not yet arrived, check in with the mine office.

Careful considerations must be given to: the method and extent of work a team is expected to perform; how the team wearing breathing apparatuses can best be utilized; weighing the benefits of the operation against the hazards the team will encounter; the best way to perform the work safely; and what offers the best chance of saving trapped workers.

IV. The Mine Rescue Team

A. One Captain
B. One Map Person
C. Two Gas Persons
D. A Briefing Officer
E. One Tail Captain

All these persons are trained in modified mine rescue and first aid. They should be physically fit to do the work that is required of them.

As it travels, the team watches out for each team member so there is no chance of some member getting in trouble. If something is amiss, be it apparatus malfunction or a team member not able to continue, the team will immediately withdraw from the mine to correct the situation. Team safety is the first concern in rescue operations.

A. Team Captain – Leader in charge of the team when it goes underground. His responsibility is to lead and direct the team as they explore the mine. He makes visual and physical inspections of the roof conditions and all areas of the mine that the team enters. He is the first to enter any unexplored area and the team is always behind him. His decision is the last and final one when discussions are ended on any problem. He is responsible for team safety, but every team member is watching out for his fellow team member. The leader of the Mine Rescue Team who leads the way when a team is advancing on foot and acts as the chief decision maker when the team is on a mission.

- Leads and directs the team members and is responsible for discipline, general safety and the work they perform.
- Reports to the Briefing Officer and is under his direction.
- Must be knowledgeable in all facets of mine rescue theory and procedures so that he can make correct and timely decisions as circumstances dictate.
- Utilizes team knowledge, skills and resources on the rescue operation.

B. The Map Person – The map person has a map of the mine that the team is exploring and as the team advances the map person designates on his map the conditions the team encounters and all information that is pertinent for the team and any team that may follow after his team is done. Examples of pertinent information would be, fires, cave areas, smoke, low oxygen, methane, CO, water roofed, the most important survivors, barricades, etc.

C. The Gas Person – The gas person's job is to take gas readings at every team stop to make sure the team is not encountering atmospheres of any kind that could endanger the team or anyone who they might find and bring out of the

mine. They also are in charge of carrying the stretcher, the gear needed to extinguish a fire, an extra breathing apparatus to put a survivor under air, and self-contained self-rescuer for the same purpose if that is all that is needed at the time for the survivor.

D. The Tail Captain (or #5 Man) - This team member is in constant radio communication with the fresh air base. He communicates with the briefing officer at the fresh air base. He gives the briefing officer all the important information that is needed to be known. For example, roof fall location, water that may affect the teams travel, unsafe atmospheres, etc. Any information which may affect the team should they try to ventilate or bring a survivor out of the mine. The Tail Captain also knows the hand or pull rope signals should communication fail and the signals would be relayed by use of a communication line that the tail captain is connected to. The five team members that work by the fresh air base are always connected together by a life line, this is a line that connects each member to the other and is always connected to the team whenever they travel and they only get off of it when they make team stops and only in clear air.

E. Briefing Officer (BO) – The Briefing Officer is the person located in the fresh air base and his is in communication with the #5 man or the tail captain. He makes sure that the team makes proper checks on their breathing apparatuses every 20 minutes, and records each member's oxygen gauge reading. The BO is in charge of helping the team to ventilate the mine should any gases or other dangers in the mine atmosphere need removed. He has a map of the mine the same as the map person has and he records all conditions that the tail captain relays to him. This is done so the briefing officer will not move any dangerous gases that may endanger the team or people trapped in the mine should the need arise to ventilate dangerous gases from the mine. Any ventilation changes are or will be discussed between the team and fresh air base coordinators before air is moved. Other duties include:

- Must have mine rescue experience, be stationed at the fresh air base, and have direct communication with the team in the mine, as well as with the Person in Charge in the command center.
- Reports directly to the Person in Charge and acts on his orders or advice.
- Informs Rescue Team Captain of all relevant data and give instructions on the work to be done.
- Accurately marks the progress and actions of the team on the mine plan, as well as logs all relevant details.
- Maintains communications with the Rescue Team and the control center.
- Follows the team's progress on the mine plan and records the findings as the team reports.
- Ensures the team is properly checked out, equipped and well briefed before leaving the base.

IV. Training

Only through regular practice will individuals learn to work effectively on a team and develop confidence in their mine rescue skills.

In mine rescue work, the safety of every Team Member depends on the actions of the other Team Members. If Members of a Mine Rescue team do not work effectively as a team then their lives are in danger. The importance of cooperation cannot be overemphasized.

The first consideration of any mine rescue operation is the safety of the individual team members.

V. Communication

It's important that the mine rescue team stay in close contact with the fresh air base to report the team's progress and to receive further instructions. It is also essential that communication be established between teams working ahead of the fresh air base and the base itself.

When wearing breathing apparatus, communication may be carried on by telephone, two-way radios or other suitable means. A microphone on the face-piece can help boost the sound to provide effective communication over the phone.

A wired telephone system is another method of communicating with the fresh air base. One team member wears the equipment and is responsible for staying in contact with the base while another is in charge of winding and unwinding the telephone line. This method is suitable only when the exploration involves short distances.

There is less anxiety and a more efficient overall rescue operation if the Captain reports to the fresh air base at every convenient opportunity. This also enables the Person in Charge to follow the progress of the team and plot it on the mine plan.

A speaker phone works well at the Fresh Air Base because it permits all concerned Personnel at the base listen in on the two-way conversation. Two-Way radios can be used if the proper aerial system is in place underground.

A. Standard Code of Signals (horn, whistle, or similar)

- One – Stop
- Two – Advance (move toward the Captain)
- Three – Retreat (Move toward the last person in order of travel)
- Four – Distress or Emergency

Both the Team Captain and the Tail-Captain do the signaling. It is standard practice for each to return or acknowledge the other's signal before anyone on the team moves.

These basic signals are normally used in conjunction with various hand or sounding stick signals given by the Captain. Hand signals are not standardized. Each team uses what works best for them. No matter what method of signaling a team chooses, it will not be suitable for all occasions. For example, a signal by sight will not be visible in smoke, nor will a horn be audible in noisy areas.

Team rest periods may be signaled by hand, sounding stick motions or verbally. Since all modern face-pieces are equipped with speaking diaphragms, voice communication is becoming more common in mine rescue work than was the case when mouth pieces were more prevalent.

Team members must know the Captain's signals so that instructions can be followed without hesitation. Strict discipline must always be maintained and all team members must obey, without question, all directions and signals given by the Captain.

VI. Record Keeping

Information the rescue team relays to the fresh air base is known as the "progress report." Progress reports keep the fresh air base and control center up-to-date on what the team is doing, where it is and what it has found. This information is used as a basis for making further rescue and recovery plans.

These reports not only inform the fresh air base and control center on the whereabouts and conditions of the team, but also provide information on the conditions found in the mine. These reports, as they are phoned up from the mine, confirm or disprove the suspected problems and conditions. Whenever the Captain reports anything, it is important to log the location and time that the information was obtained.

As the team advances through the mine, all events and conditions encountered are marked on the Captain's mine plan. When the Captain makes his progress report to the fresh air base, this information is recorded on the mine plan on the surface. This mapping provides the fresh air base and command center with a visual record of what's happening underground.

VII. Team Preparation

A. Briefing the team – directives

Team members must be fully briefed on mine conditions and the work expected of them before the team leaves the fresh air base.

The team briefing should only take place after all decisions about the operation have been made. This prevents argument about the proper steps to be taken once the briefing has begun. If possible, the briefing should take place in a quiet room where questions may be answered and the work expected of the team thoroughly explained without confusion.

The Captain takes direction from the Fresh Air Base Coordinator. All pertinent instructions should be issued in writing.

During the briefing, the team must be given all relevant information available. The team should be briefed regarding the following matters before exploration:

- Is the evacuation complete?
- Are any workers missing and where is their likely location?
- Has the tag board been checked and secured?
- What is known about the cause of disaster?
- Is this team the first team in the mine? Are other teams in the mine?
- Are guards stationed at all mine entrances?
- What is the team's mode of travel?
- What is the extent of the exploration and work performed by previous teams?
- Is the ventilation system operating?
- Will the team's travel be in the intake or exhaust? What are the gas concentrations and the amount of airflow?
- What is the team's objective?
- What is team's time limit for the operation?
- What conditions are known to exist underground?
- Is the mine communication system operating?
- Is the power to the affected area on or off?
- What is the condition of the air and water lines?
- Is there diesel or battery-powered equipment or charging stations in the affected area?
- What equipment is needed or available? Where is it located?
- What tools, rescue equipment, and supplies are available underground? What is their location?
- Are there storage areas of oil, fuel, oxygen, acetylene or explosives in the areas to be explored?
- Are there any conditions or equipments that the team should be made aware of?

All important information should be marked on an updated mine plan and given to the Captain. The communication points or telephones that the Captain will use

to make his reports to the fresh air base should also be agreed upon and marked on the mine plan.

B. Familiarization with mine workings

- Rescue Team Guides – In a major fire, it may be necessary to bring in rescue teams who are not familiar with the mine workings. If possible a qualified member familiar with the mine and in Mine Rescue should go with the team.

C. Check and guard mine openings

The mine's exhaust air should be checked for gases. The shafts should be guarded so no unauthorized persons enter the area. Care must be taken that no one is exposed to toxic gases that may be discharging from the shafts.

D. Before going underground

The Fresh Air Base Coordinator must be certain the Team Captain has:

- Confirmed all members of the team have been deemed fit by a physician to undertake the job.
- Field tested all primary, secondary and back-up breathing apparatus to ensure air tightness and proper functioning of the working parts.
- Had each team member complete the bench or field tests on the apparatus and any self-rescuers he may need to wear.
- Checked (or had team members check) the gas detectors, signal whistles, communication devices, link lines, cap lamps, and any other equipment or tools that the team will take.
- Discussed the instructions with the team to make sure each member understands them and what he is expected to do.
- Noted the time the team has been given for the trip and synchronized watches with the Coordinator; the time limit of the trip must be understood by all.
- Checked that the required tools and materials are on hand.
- Make sure a mine map, notebook, pencil, chalk, and paint are available to take underground.
- Team puts on the apparatus and "gets under oxygen" when ready to proceed.
- Inspected head-straps, buckles, face-pieces, gauge readings, and the overall condition of team members and apparatus.

The Tail-Captain makes a similar check of the Captain's apparatus and ensures the Captain has all his equipment

- Checks signal horns and communication equipment
- Reports to official in charge
- Notes time of departure

E. Number of persons required for mine rescue and recovery work

Oxygen breathing apparatus should be used only when there are enough trained people available to form a five-person team to carry out the operation.

The deployment of the first team is dictated by the urgency of the situation during the early stages of an emergency. However, a second team must be preparing for back-up before the first team can proceed.

Generally, teams at the fresh air base should be organized in the following manner:

1. First team – on a mission in the mine.
2. Second team – at the fresh air base in a state of readiness as a "back-up" team.
3. Third team – on standby in support of the first and second teams until they are needed as a back-up team.

NOTE: If space permits and there is enough testing equipment, the "back-up" team should field test their breathing apparatus and equipment at the same time as the first team so they are ready for immediate "back-up" if needed. The safety of the team always remains the main priority.

F. Time limits for rescue trips

A team should ordinarily allow twice the amount of time for the return trip it plans to use on the in-going trip.

The Captain should record the time of departure before the team leaves the fresh air base. If should be made clear that if the team fails to return to the fresh air base, or fails to make contact as scheduled, the back-up team will be sent to search for them. All instructions about time limits must be obeyed.

G. Duration of rescue operations in high temperatures

Experience shows that mine rescue teams have less endurance in hot and humid conditions. A four-hour rotation in high heat and humidity may be impossible. In that case, additional teams will be required to make up for the shorter work period.

After being exposed to extreme temperatures and humidity for even a short time, the team should rest for at least four hours.

In temperatures of approximately 45 degrees C (110 degrees F) dry bulb reading and 38 degrees C (100 degrees F) wet bulb reading, the amount of time team members spend under oxygen may have to be reduced to 20 minutes or less because of heat exhaustion.

H. Procedures while underground

Every task or exploration is different. Each one involves factors and presents its own problems. It is difficult to predict precisely what a team may be required to do. Some accepted procedures develop over the years have become standard practice for teams during exploration. They are used as "guidelines" rather than "rules" because no procedure fits every situation.

I. Team/equipment checks

Team checks should be done as soon as practicable after the team leaves the fresh air base, when it enters into a bad atmosphere and at regular intervals of fifteen minutes. These checks help make sure:

- Each team member is fit and ready to continue.
- Each team member's apparatus is functioning properly.

Usually the Captain or Tail-Captain checks the team by halting the team briefly and asking each team member how they feel. The Captain or Tail-Captain also records the time of the check and the cylinder pressures.

J. Discipline

Excessive talking should be discouraged. All team members must concentrate on the job at hand.

K. Team Safety

The safety of the team is of utmost importance. It is the first principle of mine rescue. The Captain's top priority is always team safety.

Teams entering a mine in an emergency are taking a calculated risk. Captains must give each situation careful thought before proceeding. Team safety comes first! The Captain should lead his team through the mine cautiously. He should pay very close attention to the roof and sides and to the condition of the mine atmosphere. The team must be rested regularly and members constantly checked for assigns of distress. All work must be assigned as evenly as possible so that no team member becomes too tired. Excessive rushing or running tires the team unnecessarily and, in some circumstances, may endanger lives.

L. Route of travel

The rescue team should explore a mine via the fresh air route, whenever possible. There are two good reasons for this practice:

1. The danger to the exploring team is less.
2. The fresh air base can be located closer to the emergency.

Circumstances may make it impossible to travel by a fresh air route. The Team Captain must always be sure the team has a safe route of retreat. If traveling underground via the exhaust shaft, ensure the hoist-man is equipped with, and trained in the use of, breathing apparatus where necessary.

A rescue team should always properly mark the route it uses going in so that

- The team can retrace its travel route without getting lost on the way out of the mine if working in poor visibility or in complicated mine workings.
- If the team gets into trouble and cannot get out of the mine, the back-up team coming to its rescue can find it by following the marked route.

The route should be clearly marked by whatever method the rescue operation chooses. The method should be understood by everyone before entering the mine. Methods include:

- Fencing off the un-traveled (or side) entries with physical barriers.
- Drawing an arrow with a chalk or spray paint in the entry the team has taken from the intersection pointing towards the fresh air base. The arrow should be about 12 inches in length and drawn on the right wall about eye level in height.
- Trailing communication lines or life lines.
- Opening the rail switch in the direction of travel.

Short stub intersections need not be marked with route markers if the face of the stub has been explored, dated and initialed by the Captain. All places of the team's retreat should also be marked, dated and initialed. This could be the end of the entry, cave seal, door, or just the team's turn around in a long entry.

If the team retraces its steps, route markers should be cancelled. The details and method of route markings must be understood by all back-up teams.

All team members must remain in close proximity and in contact with each other at all times. If this is not possible due to poor visibility, the members must keep in physical contact by using life lines.

Extreme caution must be used when traveling under conditions of poor visibility.

When any work is being done by the team (e.g. building stoppings, timbering, scaling, etc.) the Captain or Tail-Captain must always be on guard against hazards or risks to the team's health and safety.

Mine Rescue Personnel Call Tree

The mine where the emergency takes place will notify the proper authorities. The Deputy Commissioner, Don McCorkle, will notify Commissioner Rivera (Department of Labor) and Greg Xanders, as well as White River, Sunrise and Triad Coal Companies. Greg Xanders will notify both Black Beauty Mines and Five Star Mining Company.

All mines have been informed that when they are called regarding a mine emergency, they are to contact all mine rescue team members that are employed by their mine. Each mine has a new call list and has verbally verified that the calling tree was understood by all employees. Gibson County Coal will be notified in the event that their mine rescue team assistance is needed for a mine rescue.